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SCIENCE

NEW YORK, JUNE 2, 1893.

THE LATEST DISCOVERIES IN CHALDÆA.

BY THE MARQUIS DE NADAILLAC, PARIS, FRANCE.

ALL we knew of Chaldæa was a very few years ago completely legendary. Thanks to our scientists and to their discoveries, every day brings us new and important facts. Inscriptions allow us to learn the names of kings six thousand years old. Sculptures disclose to us their faces, their weapons, their vestments, the soldiers who followed them, the horses who bear them. We may be allowed to say, with a just pride, that the nineteenth century, now so near its close, deserves well of science, and that never have the progresses in every branch of human knowledge been either so numerous or so wonderful.

In September last, Mr. Maspero presented to the Académie des Inscriptions¹ the photograph of a Chaldæan sculpture dedicated by King Naramsin, who reigned in Babylonia and in the northern parts of Chaldæa some 3800 years before our era. The sculpture actually in the Museum of Constantinople is in a very mutilated condition but shows, nevertheless, a masterly execution and can well be compared with the celebrated diorite statues excavated at Tello a few years ago. Centuries must certainly have elapsed before men could have acquired such an art and attained the civilization it allows us to presume. Centuries are not less necessary to arrive at the agglomeration of population required for the execution of similar monuments and the establishment of a kingly power. It is difficult even to imagine the vast past we must embrace.

The last researches have brought to light numerous works of a more rude and primitive art which tend to confirm our opinion. Amongst the discoveries lately reported by that eminent Assyrian archæologist, Mr. Léon Heuzey,² those of Mr. de Sarzec at Tello are the most important, and date certainly from older times than King Naramsin. The discovery of three new fragments have completed the celebrated *stèle des vautours*, so named on account of the vultures which hover above the scenes depicted, and certainly one of the oldest and most remarkable works of the Chaldæan artists.

The monument presents on both sides figurative scenes. It was ordered, as the inscription runs, by E-anna-dou, King of Sirpoula,³ son of A-Kourgal and grandson of Our-Nina, one of the oldest Chaldæan kings as yet known to us. One of the most remarkable scenes which it has been possible to reconstruct represents a funeral after a battle or a thanksgiving after a victory. The number of the human bodies shows the severity of the fight. An ox is provided for the sacrifice to be offered to the presiding deity. Other fragments show E-anna-dou at the head of his soldiers, disposed in six ranks, armed with pikes and carrying large rectangular shields of a very peculiar form.

The king himself is represented in the act of piercing with his lance a defeated enemy, or on his chariot charging the flying crowd. This last scene is unluckily much damaged. In both of them the king carries in his left hand a long lance. The chariot is a set of panels curiously put together; on the front seat are deposited a battle-axe and a quiver full of arrows. The wheels unluckily have been destroyed. E-anna-dou wears a kaunakes rolled round his legs and a woollen cloak thrown over his shoulders and chest. He has no beard but an abundant flow of hair partly brought up on his neck and partly hanging on his back. In all the scenes in which the king appears, besides his

lance he carries in his right hand a crooked weapon of a very peculiar form, which Mr. Heuzey compares to the weapon or mark of dignity carried by the head of the Asiatic tribe Amou in the celebrated picture in an Egyptian tomb of the XII dynasty at Beni-Hassan near Minieh. It is obvious that such a fact is worth noticing. Detail we must not omit in all these Chaldæan scenes, the ground is strewn with human bodies symmetrically arranged, head against head, as a carpet for the warlike and savage king.

The other side of the stela presents sculptures presumed to be of a mythological character. A man or a god of gigantic size is the principal actor; his bulky head, his powerful frame, his broad shoulders, form a striking contrast with the figures already described. His hair is in the same style as the hair of King E-anna-dou, and is maintained by a large head-band; but what distinguishes him from the royal figure is a flowing beard plaited in the Assyrian fashion. The body is naked, the middle part alone is covered by some sort of cloth, of which little remains. In his hands the giant carries a massive club and a curious instrument, the use of which is difficult to guess; it figures an eagle whose claws rest upon a lion's head, the heraldic figuration of the town of Sirpoula, says Mr. Heuzey, to whom we leave the responsibility of the assertion.⁴

Under the principal personage is a very striking scene. Near the arm which carries the eagle is an immense net in which crawl in all possible attitudes, trying to escape through the meshes, a number of naked men whose features recall those of the captives under the feet of E-anna-dou and who evidently belong to the same race. We cannot tell the meaning of this scene; it brings to mind the curses of the prophet Habakkuk, comparing the defeated populations to fishes which the Chaldæan conqueror carries off in his net.⁵

With these sculptures were found fragmentary inscriptions difficult to decipher. We can, nevertheless, read "Isbanki," with its principal town, "Ner-ki-an," as a country subdued by King E-anna-dou. We find also mentioned two Chaldæan towns, Our and Erech, which are named in Genesis. They were, therefore, in existence and in communication with Sirpoula in those very ancient days, certainly many centuries before Moses.

E-anna-dou, we have said, was the grandson of Our-Nina, already king of Sirpoula. We are in possession of numerous antiquities which can leave no doubt of the existence of Our-Nina, bricks from an edifice probably a temple erected by him,⁶ tablets with inscriptions,⁷ other tablets with animal figures, small bronze statues, the fragments of an onyx vase, and sculptures which show the king amongst his court and family.

One of the fragments thus discovered shows a double procession marching towards a man placed alone in the middle. The name of Our-Nina, twice repeated, leaves no doubt as to the personage so figured. The king is naked with only a kaunakes rolled round his loins. His hair is closely shaven, and he carries upon his head a large basket similar to those carried by the slaves in the *stèle des vautours* and very similar also to the couffe in use with the Arabs till this day. In his devotion, the king is carrying the materials for the building of a temple. An inscription recently deciphered puts the fact above discussion. It reads thus: "Nina-Our, son of Nini-hal-dou, son of Gour-sar, the temple of

⁴ The giant himself, according to our eminent Orientalist, is the god or hero Isdoubar, figured in a very old relievo discovered a few years ago by Mr. de Sarzec.

⁵ "They take up all of them with the angle, they catch them in their net and gather them in their drag. Therefore they rejoice and are glad. Shall they therefore empty their net and not spare continually to slay the nations?"—Habakkuk, C. IV., 15-17.

⁶ Découvertes en Chaldée, Pl. xxxi., Fig. 1.

⁷ Revue d'Assyriologie, T. II., p. 147.

¹ Bul., Sept. 30, 1892.

² Bul. Acad. des Inscriptions, 12 Aout et 21 Octobre, 1892.

³ Assyriologists look upon Sirpoula as the same town as Lagash, mentioned in some cylinders also found by Mr. de Sarzec.

the god Nin-ghir-sou has erected." We read, also, in another inscription behind the head of the king: "Nina-Our, King of Sirpoula," and a little above his knees: "from Magan in the mountain quantities of wood he has ordered," and after the last personage figured: "the temple of the goddess Nina he has erected."¹ We are evidently in presence of a very pious prince, and we know from other sources that he erected or repaired a certain number of temples dedicated to his gods. All the figures and inscriptions show a most primitive art, inferior to that dating from the days of E-anna-dou. They are nevertheless of high value as historical and genealogical records.

The importance of these discoveries cannot be overrated. That importance resides not only in the insight they bring on the customs, wars, and religions of nations whose very names were unknown but a few years ago, but also in the greater antiquity we must now accept for the origin of man himself. The dates given for the creation must be amended, as we know now with certitude, that in those days men and nations already existed in numbers, towns were built, monuments were erected, arts were flourishing, kingdoms already powerful were in existence, and we find both in Asia and in Africa traces of a civilization which centuries alone could have reared and maintained.

AN EXPERIMENTAL BASIS FOR LITERARY CRITICISM.

BY CONWAY MAC MILLAN, UNIVERSITY OF MINNESOTA, MINNEAPOLIS, MINN.

THE volume, entitled "Analytics of Literature," just published by Ginn & Co. of Boston, seems to the writer so epoch-making a work that he takes advantage of the courtesy extended by *Science* to direct the attention of scientific men in general and biological students in particular to the new and brilliant application in it of the familiar methods of research which they have themselves used in other departments of investigation. The truth is that there is the emergence of a new science—the science of experimental criticism, or, if one likes, the science of style-morphology, embryology, and physiology. It is a most noteworthy volume, and though unpretentious and perhaps marred by departures here and there from the strict scientific method, it will take its place with such a work as that of Fechner, in which he brought recalcitrant psychology under the laws of empiricism, and banished the intuitional and closet-metaphysician in the ratio in which he introduced the laboratory method of psycho-physics and the experimental psychologist of the school of Wundt. No more far-reaching scientific work has been done in America than the reduction, in this book by Dr. L. A. Sherman, of so mysterious a matter as literary style to the basis of a department of experimental science. But after an acquaintance with the method and an application of it, during the ten years past in which it has been laboriously and carefully developed by its originator, I have no hesitation in pronouncing the work an extraordinary and inspiring advancement of biological methods into a field where, oddly enough, they have not before been employed.

The new point of view is simply this: style is an institution. It may be considered apart from the message which the writer wishes to convey. Under such an analysis style is found to obey the laws of other institutions or organisms. It is a matter of evolution. It is in any case a structure of which the phylogeny and the ontogeny may be calculated. In the child, one may study the ontogeny of a style, and of children's phases of sentence development the author of "Analytics of Literature" gives some valuable examples. And in the literature of the English-speaking peoples there is a vast storehouse of palæontological material from the study of which, after comparison with the ontogenetic development, it is possible to determine some of the laws of style-evolution. Thus a foundation for a style taxonomics is laid and one finds that, as one should expect, all the well-known laws of heredity in general and of progress, degen-

eration, variation, reversion, or atavism, persistence of type and modification of type in particular, apply to literary styles precisely as to organisms. It becomes possible to determine a style, not in the old intuitional manner of literary art as indicated in Sainte Beuve, Arnold, or Lessing, but in the precise manner of the zoological monograph. It becomes possible to establish genera, species, tribes, orders, if one will, of literary style, and the whole matter of literary criticism at one touch passes over into the domain of natural science, just as music so passed in the thought of Schopenhauer and Wagner, metaphysics under the hand of Wundt, biology by the genius of Aristotle, Bacon, and Darwin.

The genesis of such a work must be of interest. As indicated in the preface it was a development, not an inspiration. The first published paper that pointed out the objective method in criticism, so far as known to the writer, was that of Sherman in the *University Studies*, October, 1888.² Here the matter of enquiry was the changing length of the sentence in English prose and a number of statistics were presented. It was shown that there has been a progressive shortening of the sentence from early pre-Elizabethan prose to the present. Some data are added here by way of illustration. They are taken from both the *Studies* article and from the recent volume.

Average number of words to the sentence in various English writers, computed from prose, on the basis of five hundred sentences.

Chaucer,	40. +	Browne,	33.40
Thomas More,	52. +	Fuller,	32.80
Lyly,	52.22	Addison,	37.90
Roger Aschman,	42. +	"Junius,"	31.90
Sidney,	50.65	DeQuincy,	32.28
Fabian,	63.02	Matthew Arnold,	37.
Spenser,	49.82	Lowell,	38.
Hooker,	44. +	Pater,	36.5
Bacon,	22.	Macauley,	22.45
Dryden,	45.26	Channing,	25.73
Bunyan,	37.50	Emerson,	20.58
Milton,	60.80	Bartol,	15.97

These averages once established may be tried in other parts of the works of any author and will be found practically constant. For example, in Macauley's "Essays" the average length of the sentence is 23.+. Testing by the "History of England" it was found that in this the average of the 41,579 periods counted is 23.43 words per sentence. Thus it can be shown in any author who has acquired a style that five hundred or a thousand sentences taken at random will establish a sentence-norm for that author and from this norm the variation will be slight. Disparities, too, are greatest in more ancient styles, indicating their less complete organization. For example, in Chaucer the average of Melibœus is 48.+, while that of the Parson's tale is 36.+, an almost unparalleled discrepancy.

It is possible, then, for any author to plot a curve of sentence-length, and when this is done the surprising fact stands forth that the average is brought about by "evening-up" a comparatively large number of sentences only a little shorter than the mean with a comparatively few sentences excessively long. Since the long sentence is clearly shown by palæontologic investigations to be the older type in any literature, it appears that in modern stylists, even, there is an atavistic tendency, and this is capable of beautiful and instinctive comparison with the persistent styles of low type that can be picked up anywhere—in newspaper-advertisements or in cheap novels—where, if there is an independent style at all, it will be one of older and lower organization.

Even in the preliminary analysis of sentence-length, singular and unintelligible facts have been discovered that demand further investigation before their import can be known. DeQuincy is peculiar in the number of prime-sentences, those in which the number of words is indivisible by any quantity but the number itself and unity. Curious lapses into ancient manner in moderns and astonishing forecasts of modern manner by ancients

¹ Amlaud, "Records of the Past," T. I., p. 64; Jensen, "Keilenschriftliche Bibliothek," T. III., p. 10.

² On the Sentence-length in English Prose, pp. 119-130.